

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1, 4, 5 and 25 remain in the application. Claim 1 is independent.

In the Office Action, dated April 10, 2008, claims 1-15 were rejected based upon prior art. By this reply, claims 1, 4 and 5 have been amended. As should be clear from the amendments, every effort has been made to advance the prosecution toward allowance by the presentation of claims which on their face avoid the prior art applied in the first Office Action, and thereby conclude prosecution in an expeditious manner. Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

Claim Rejections – 35 U.S.C. § 102

Claims 1-3 stand rejected under 35 U.S.C. § 102(e) as allegedly unpatentable over U.S. Pub. No. 2005/0172644 to Zhang et al. ("Zhang"). Applicants submit that the Examiner has failed to establish a *prima facie* case of anticipation and respectfully traverse the rejection.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that claim 1 has been amended to include limitations not shown or suggested by the prior art, including Zhang, thus rendering this rejection under 35 U.S.C. § 102(e) moot. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claim 1 now requires, *inter alia*, a heat exchanger comprising an annular evaporator surrounding a heat radiating portion to have an axis extending horizontally to evaporate a coolant in said evaporator; a condenser condensing said coolant; a conduit guiding said coolant from said evaporator to said condenser; and a return pipe returning from said condenser to said evaporator said coolant condensed by said condenser, wherein said conduit has an opening at an outer circumferential surface of said evaporator; said return pipe has an opening in said evaporator at a gaseous coolant area; said return pipe has said opening separated from said outer circumferential

surface of said evaporator; said conduit is larger in diameter than said return pipe; said evaporator is divided into two sub evaporators; said conduit and said return pipe are connected to each of said two sub evaporators; and said two sub evaporators are coupled together by a connection pipe to allow said two sub evaporators to communicate a liquid coolant therebetween.

This combination of features is neither shown nor suggested by Zhang, which only shows the general arrangement of condenser 3, evaporator 1, gas pipe 2 and liquid pipe 4. Zhang clearly fails to show or suggest two sub evaporators along with a return pipe and conduit connected to the two sub evaporators as claimed. Accordingly, it is respectfully submitted that claim 1 as now amended clearly fails to establish *prima facie* anticipation of claim 1.

Claim Rejections – 35 U.S.C. § 103

Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Zhang in view of U.S. Pub. No. 2005/0210885 to Pereira et al. (“Pereira”). Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), the cited references must teach or suggest each and every element in the claims. See *M.P.E.P.* § 706.02(j); *M.P.E.P.* 2141-2144.

Claim 1, now recites, *inter alia*, that said conduit has an opening at an outer circumferential surface of said evaporator; said return pipe has an opening in said evaporator at a gaseous coolant area; said return pipe has said opening separated from said outer circumferential surface of said evaporator; said conduit is larger in diameter than said return pipe; said evaporator is divided into two sub evaporators; said conduit and said return pipe are connected to each of said two sub evaporators; and said two sub evaporators are coupled together by a connection pipe to allow said two sub evaporators to communicate a liquid coolant therebetween. The rejection refers to Pereira for the feature related to the pipe connection to the side wall, referring to line 80 leaving the top and line 70 entering the side wall. To the contrary, line 70 is the inlet line for the liquid condensate entering the capillary pump, and line 80 is the gas outlet for the gas moving toward the condenser 60. Pereira does not teach that the conduit is connected

to the evaporator at an outer circumferential surface and does not teach that the return pipe is connected to the evaporator at an axial end surface. Accordingly, the secondary reference Pereira neither discloses nor suggests the conduit has an opening at an outer circumferential surface of said evaporator; said return pipe has an opening in said evaporator at a gaseous coolant area; said return pipe has said opening separated from said outer circumferential surface of said evaporator; said conduit is larger in diameter than said return pipe; said evaporator is divided into two sub evaporators; said conduit and said return pipe are connected to each of said two sub evaporators; and said two sub evaporators are coupled together by a connection pipe to allow said two sub evaporators to communicate a liquid coolant therebetween, as recited in amended claim 1, from which claims 4 and 5 depend. Accordingly, the Office Action fails to make out a *prima facie* case of obviousness of the subject matter recited in currently pending claims 1, 4 and 5.

Claims 6-8 and 11-13 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Zhang in view of either of U.S. Patent No. 5,803,161 to Wahle et al. ("Wahle") or U.S. Patent No. 5,502,582 to Larson et al. ("Larson"). Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), the cited references must teach or suggest each and every element in the claims. *See M.P.E.P. § 706.02(j); M.P.E.P. 2141-2144.*

Claim 1 has been amended to clarify that the sub evaporators comprise separate sub evaporators which are coupled together by a connection pipe. This particular feature greatly improves the ease of fabrication and assembly.

The rejection relies upon Wahle or Larson for this feature. To the contrary, Wahle shows a pipe heat exchanger with a number of heat pipes extending therefrom into the surrounding seawater. They do not form one annular evaporator from a plurality of sub evaporators. Likewise, Larson merely shows planar flexible bag-like containers. These bags in Larson also do not form one annular evaporator from a plurality of sub evaporators. Accordingly, the

secondary references to Wahle and Larson neither disclose nor suggest that the evaporator 1 of Zhang be altered in the manner recited in amended claim 1, and from which claims 4, 5 and 25 depend. Accordingly, the Office Action fails to make out a *prima facie* case of obviousness of the subject matter recited in currently pending claims 1, 4, 5 and 25.

Claims 9, 10, 14 and 15 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Zhang in view of either of Wahle or Larson, and further in view of Pereira. The patent to Pereira neither shows nor suggests the formation of one annular evaporator from a plurality of sub evaporators. Like Zhang, Pereira also shows only one annular evaporator. Therefore, Pereira fails to remedy the failure of the prior art to show or suggest this claimed feature of the invention. Once again, Applicants submit that the prior art fails to show or suggest the features of claims 1, 4, 5 and 25.

Conclusion

All objections and rejections raised in the Office Action having been properly traversed and addressed, it is respectfully submitted that the present application is in condition for allowance. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Notice of same is earnestly solicited.

Prompt and favorable consideration of this Amendment is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Paul T. Sewell, Registration No. 61,784, at (703) 205-8000, in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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